REMARKS/ARGUMENTS

Reconsideration and allowance of the present application based on the following remarks are respectfully requested. Claims 9 and 11 have been amended to correct typographical errors. New claims 12-18 have been added. Support for all amendments can be found throughout the specification, such as, for example, at page 3, lines 9-13 and page 5, line 37 through page 6. No new matter has been added.

Claims 9-11 have been rejected under the judicially-created doctrine of obviousness-type double patenting as being unpatentable over claims 1-13 of U.S. Patent 6,703,342. Applicants will address this rejection upon indication of allowable subject matter.

Claims 9-11 have been rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent 4,863,894 ("Chinchen") or U.S. Patent 3,226,340 ("Stephens"). Claims 9-11 have also been rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent 5,847,131 ("Simon") in view of U.S. Patent 5,298,472 ("Wegman").

With respect to the rejection based on Chinchen, Applicants respectfully assert that Chinchen fails to teach or suggest the use of a transition alumina (or an alumina that has been produced by calcination at a temperature above about 400°C). Rather, Chinchen teaches only the use of an oxide of aluminum, or alumina, that has not been calcined. Additionally, there is no teaching or suggestion in Chinchen to include in Chinchen's catalyst a copper to aluminum ratio in the range 0.14 to 0.5, as is recited in the pending claims. To the contrary, Chinchen teaches a composition containing Cu, Zn, Mg and optionally from 2 – 50% of element X (e.g. Aluminum) atoms. (*see*, for example, col. 2, lines 50 – 51 of Chinchen). In this regard, the minimum combined amount of Zn and Mg atoms taught to be present by Chinchen is 0.3 times the number of Cu atoms. (*see* col. 2, lines 33-34). Accordingly, at this minimum content of Zn/Mg, and maximum 50% Aluminum, the composition of the metal atoms taught by Chinchen would be approximately 50% Al, 38.5% Cu and 11.5% Zn/Mg. The ratio of Cu:Al in such a composition is 38.5:50 --- or 0.77 --- which is significantly greater than the maximum Cu:Al ratio of 0.5 recited in the pending claim 9. As such, the claims are believed to be patentable over the cited reference.

With respect to the rejection based on Stephens, Applicants respectfully assert that Stephens does not teach a copper species supported on a porous transition alumina. Rather, Stephens teaches the inclusion of a lamina or layer of "oxides of one or more metals selected from the group consisting of the First Transition Series of the Periodic Table and the Lanthanide Series of Elements" in between the transitional alumina carrier and an outermost lamina or layer of copper oxide. (*see* Stephens at, for example, col. 1 line 60 through col. 2, line 3). In fact, Stephens teaches at col. 3, lines 6-9, that such a coating of the transitional alumina carrier with the metal oxide lamina is "a critical feature of the catalysts" taught therein. As such, the claims are believed to be patentable over the cited reference.

With respect to the rejection based on Simon in view of Wegman, as is acknowledged by the Examiner, Simon fails to teach the atomic ratio recited in the pending claims. Additionally, Simon and Wegman teach away from a composition comprising a copper species supported on a porous transition alumina, as is recited in the pending claims. In particular, Simon teaches away from the use of alumina supports for catalysts. In "Comparative Example 1.4", for example, Simon teaches that copper on alumina catalysts have a yield of "barely 35% of theory" --- as compared to Example 1.1 of Simon, in which copper on silica catalysts are taught to have a yield of "82% of theory". Similarly, Wegman describes a hydrogenation process using a co-precipitated Cu-Al catalyst. Wegman describes the use of "non-homogeneous catalysts prepared by impregnating alumina with copper nitrate" at col. 9, lines 12-40. These catalysts are described by Wegman as inferior to the homogeneous co-precipitated Cu-Al catalysts because they produce undesirable by-products in the hydrogenation process. (*see*, for example, col. 9, lines 34-37). Accordingly, since both Simon and Wegman teach that copper supported on an alumina support is inferior to the catalysts described in each reference (respectively, copper on silica and impregnated Cu-Al on alumina), it would not have been obvious to one of ordinary skill in the art to combine these references --- much less try such a combination --- to make the composition of the present invention.

Therefore, all objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

Should any issues remain unresolved, the Examiner is encouraged to contact the undersigned attorney for Applicants at the telephone number indicated below in order to expeditiously resolve any remaining issues.

Respectfully submitted,

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